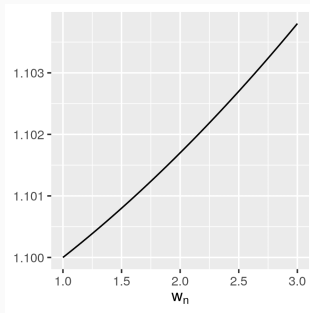


Annotating a graphic using TikZ.

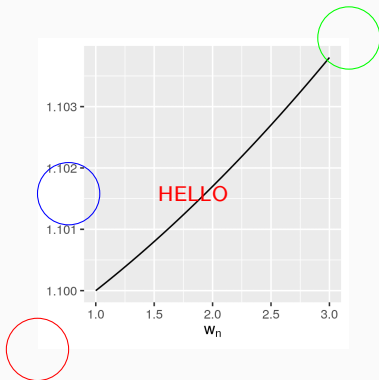


Let's annotate this graphic using TikZ.

```
\begin{center}
\begin{minipage}{0.38\textwidth}
\includegraphics[width=\textwidth]{e_beta_w}
\end{minipage}
\end{center}
```

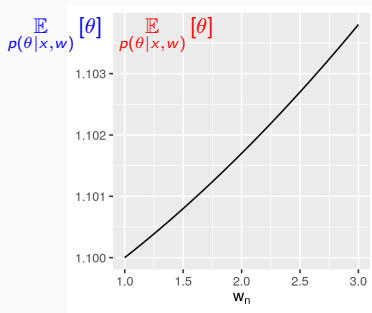
From now on, everything I'm going to do will be within the minipage.

How does the IJ work? Data re-weighting.



```
\begin{tikzpicture}
  \node[anchor=south west,inner sep=0] (image) at (0,0) {
    \includegraphics[width=\textwidth]{e_beta_w}
  };
  \begin{scope}[x={({image.south east}},y={({image.north west}})]
    \draw[color=red] (0, 0) circle (0.1);
    \draw[color=green] (1.0, 1.0) circle (0.1);
    \draw[color=blue] (0.1, 0.5) circle (0.1);
    \node[color=red] (hello) at (0.5, 0.5) {HELLO};
  \end{scope}
\end{tikzpicture}
```

How does the IJ work? Data re-weighting.

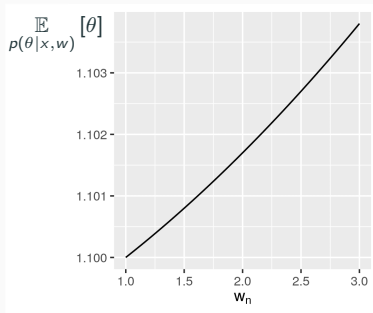


Here and from now on, I'll assume all commands are within the “scope” block.

```
\node[anchor=west, color=red] (y-label) at (0.14, 0.9)
    {\$\expect{p(\theta \vert \x, \w)}{\theta}$};

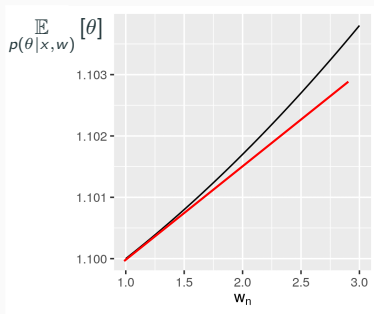
\node[anchor=east, color=blue] (y-label) at (0.14, 0.9)
    {\$\expect{p(\theta \vert \x, \w)}{\theta}$};
```

How does the IJ work? Data re-weighting.



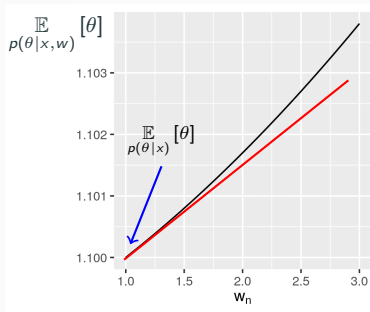
```
\draw[color=white, fill=white] (-0.2,0) rectangle (0,1);  
  
\node[anchor=east] (y-label) at (0.14, 0.9)  
    {\textcolor{blue}{p}(\textcolor{blue}{\theta} \textcolor{blue}{\vert} \textcolor{blue}{x}, \textcolor{blue}{\w})\textcolor{blue}{\text{\theta}}};
```

How does the IJ work? Data re-weighting.



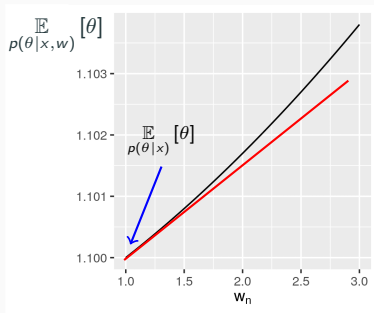
```
\draw[red, thick, -] (0.18,0.18) -- ++(1.2 * 0.6, 1.2 * 0.48);
```

How does the IJ work? Data re-weighting.



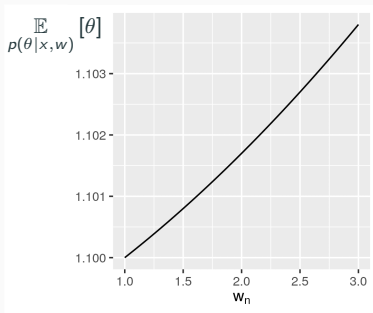
```
\draw[blue, thick, <-] (0.2,0.23) -- ++(0.1,0.25)
node[above, black, fill opacity=0, text opacity=1]
{\small $\text{expect}\{p(\theta \text{ vert } x)\}\{\theta\}$};
```

How does the IJ work? Data re-weighting.



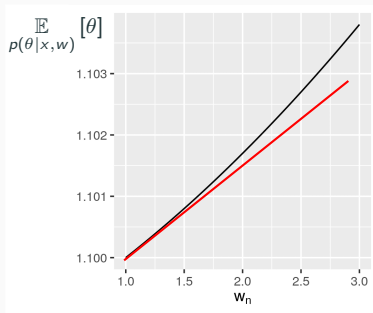
```
\draw[color=white, fill=white] (-0.2,0) rectangle (0,1);
\node[anchor=east] (y-label) at (0.14, 0.9)
    {\$ \expect{p(\theta \vert x, w)}{\theta} \$};
\draw[red, thick, -] (0.18,0.18) -- ++(1.2 * 0.6, 1.2 * 0.48);
\draw[blue, thick, <-] (0.2,0.23) -- ++(0.1,0.25)
    node[above, black, fill opacity=0, text opacity=1]
    {\small \$ \expect{p(\theta \vert x)}{\theta} \$};
```

How does the IJ work? Data re-weighting.



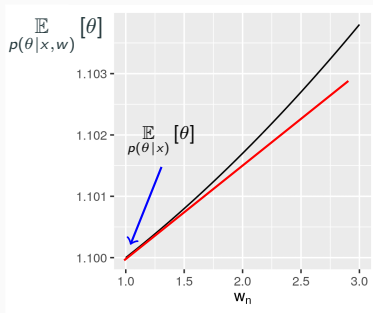
```
\draw[color=white, fill=white] (-0.2,0) rectangle (0,1);
\node[anchor=east] (y-label) at (0.14, 0.9)
    {\$ \expect{p(\theta \vert x, \w)} {\theta} \$};
\onslide<2->{
    \draw[red, thick, -] (0.18,0.18) -- ++(1.2 * 0.6, 1.2 * 0.48);
}
\onslide<3->{
    \draw[blue, thick, <-] (0.2,0.23) -- ++(0.1,0.25)
        node[above, black, fill opacity=0, text opacity=1]
        {\small \$ \expect{p(\theta \vert x)} {\theta} \$};
}
```


How does the IJ work? Data re-weighting.



```
\draw[color=white, fill=white] (-0.2,0) rectangle (0,1);
\node[anchor=east] (y-label) at (0.14, 0.9)
    {\$ \expect{p(\theta \vert x, \w)}{\theta} \$};
\onslide<2->{
    \draw[red, thick, -] (0.18,0.18) -- ++(1.2 * 0.6, 1.2 * 0.48);
}
\onslide<3->{
    \draw[blue, thick, <-] (0.2,0.23) -- ++(0.1,0.25)
        node[above, black, fill opacity=0, text opacity=1]
        {\small \$ \expect{p(\theta \vert x)}{\theta} \$};
}
```

How does the IJ work? Data re-weighting.



```
\draw[color=white, fill=white] (-0.2,0) rectangle (0,1);
\node[anchor=east] (y-label) at (0.14, 0.9)
    {\small $\expect{p(\theta \text{ \texttt{vert} } \text{ \texttt{x} } , \text{ \texttt{w} })}{\theta}$};
\onslide<2->{
    \draw[red, thick, -] (0.18,0.18) -- ++(1.2 * 0.6, 1.2 * 0.48);
}
\onslide<3->{
    \draw[blue, thick, <-] (0.2,0.23) -- ++(0.1,0.25)
        node[above, black, fill opacity=0, text opacity=1]
        {\small $\expect{p(\theta \text{ \texttt{vert} } \text{ \texttt{x} })}{\theta}$};
}
```

Beamer:

- Google "beamer tutorial"
- <https://warwick.ac.uk/fac/sci/physics/research/cfsa/people/pastmembers/wuensch/workshoplatex/beamertutorialkwuensch.pdf>
- <https://www.texdev.net/2014/01/17/the-beamer-slide-overlay-concept/>

TikZ:

- https://www.overleaf.com/learn/latex/TikZ_package
- <https://www.math.uni-leipzig.de/~hellmund/LaTeX/pgf-tut.pdf>
- <https://latexdraw.com/how-to-annotate-an-image-in-latex/>
- <https://tex.stackexchange.com/questions/9559/drawing-on-an-image-with-tikz>